

THE LEADER IN ENVIRONMENTAL TESTING

### ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo 10 Hazelwood Drive Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-126540-1

Client Project/Site: Stormwater Toxicity + BOS/TSS/N2

### For:

SUEZ Water Environmental Services Inc. 1 Berkshire Street Holyoke, Massachusetts 01040

Attn: Val Partyka

Authorized for release by: 11/14/2017 12:53:07 PM

Steve Hartmann, Project Manager I

(413)572-4000

steve.hartmann@testamericainc.com

·····LINKS ······

**Review your project** results through **Total Access** 

**Have a Question?** 



Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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### **Definitions/Glossary**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2

TestAmerica Job ID: 480-126540-1

### **Qualifiers**

### **General Chemistry**

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

Method Detection Limit Minimum Level (Dioxin)

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)
Toxicity Equivalent Quotient (Dioxin)

Not Calculated

**Quality Control** 

H Sample was prepped or analyzed beyond the specified holding time

Minimum Detectable Concentration (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry)

Not Detected at the reporting limit (or MDL or EDL if shown)

Relative Percent Difference, a measure of the relative difference between two points

### **Glossary**

MDC

MDL

ML NC

ND

**PQL** 

QC RER

RL

**RPD** 

**TEF** 

**TEQ** 

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
L, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
LC	Decision Level Concentration (Radiochemistry)
DL	Estimated Detection Limit (Dioxin)
OD	Limit of Detection (DoD/DOE)
.OQ	Limit of Quantitation (DoD/DOE)
ИDA	Minimum Detectable Activity (Radiochemistry)

### **Case Narrative**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2

TestAmerica Job ID: 480-126540-1

Job ID: 480-126540-1

**Laboratory: TestAmerica Buffalo** 

**Narrative** 

Job Narrative 480-126540-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 10/26/2017 1:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### **General Chemistry**

Method SM 2320B: The following sample(s) was received with headspace in the sample container. This sample container was received with headspace. CSO#9 STORMWATER (480-126540-1).

Method SM 5210B: The glucose-glutamic acid standard recovered outside the recovery limits specified in the method for batch 480-384090 . Recovery was 77% with quality control limits of 85-115%; therefore results may be biased low for the following samples: CSO#9 STORMWATER (480-126540-1), (480-126523-A-1) and (480-126523-A-1 DU).

Method SM 2540C: Reanalysis of the following sample was performed outside of the analytical holding time in order to confirm results. Results did not confirm, both results are reported. CSO#9 STORMWATER (480-126540-1).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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### **Client Sample Results**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2 TestAmerica Job ID: 480-126540-1

Lab Sample ID: 480-126540-1

**Matrix: Water** 

Client Sample	ID:	CSO#9	STORMWA	TER

Date Collected: 10/25/17 03:47 Date Received: 10/26/17 01:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	640		10		ug/L		11/06/17 16:06	11/07/17 18:19	1
Cadmium	ND		0.50		ug/L		11/06/17 16:06	11/07/17 18:19	1
Copper	34		5.0		ug/L		11/06/17 16:06	11/07/17 18:19	1
Lead	26		0.30		ug/L		11/06/17 16:06	11/07/17 18:19	1
Nickel	ND		5.0		ug/L		11/06/17 16:06	11/07/17 18:19	1
Zinc	74		20		ug/L		11/06/17 16:06	11/07/17 18:19	1

General Chemistry Analyte	Rosult	Qualifier	RL	MDI	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	0.84		0.20	WIDE	mg/L		10/26/17 14:14	10/28/17 12:12	1
Total Kjeldahl Nitrogen	2.7		0.20		mg/L		10/26/17 08:15	10/26/17 14:00	1
Nitrite as N	ND		0.050		mg/L			10/26/17 21:38	1
Nitrate as N	0.22		0.050		mg/L			10/26/17 21:38	1
Alkalinity, Total	7.7		5.0		mg/L			10/27/17 22:22	1
Residue, Total	170		10		mg/L			11/01/17 16:23	1
Total Dissolved Solids	ND		2000		mg/L			11/01/17 04:41	1
<b>Total Dissolved Solids</b>	55	н	10		mg/L			11/03/17 04:06	1
<b>Biochemical Oxygen Demand</b>	21	*	12		mg/L			10/26/17 15:11	1
<b>Total Organic Carbon</b>	9.9		1.0		mg/L			10/30/17 18:28	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	27000		10000		ug/L			10/29/17 09:09	1
Specific Conductance	130		1.0		umhos/cm			10/26/17 17:35	1
Total Suspended Solids	61		4.0		mg/L			10/30/17 00:57	1
Nitrogen, Total	2.9		0.20		mg/L			11/02/17 12:23	1

### **Lab Chronicle**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2 TestAmerica Job ID: 480-126540-1

Lab Sample ID: 480-126540-1

**Matrix: Water** 

Client Sample ID: CSO#9 STORMWATER

Date Collected: 10/25/17 03:47 Date Received: 10/26/17 01:30

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	200			501519	11/06/17 16:06	AJR	TAL SAV
Total/NA	Analysis	200.8		1	501736	11/07/17 18:19	BJB	TAL SAV
Total/NA	Prep	Distill/Ammonia			384007	10/26/17 14:14	KRT	TAL BUF
Total/NA	Analysis	350.1		1	384400	10/28/17 12:12	KRT	TAL BUF
Total/NA	Prep	351.2			383899	10/26/17 08:15	CLT	TAL BUF
Total/NA	Analysis	351.2		1	384032	10/26/17 14:00	CLT	TAL BUF
Total/NA	Analysis	353.2		1	384091	10/26/17 21:38	DCB	TAL BUF
Total/NA	Analysis	Nitrate by calc		1	384097	10/26/17 21:38	DCB	TAL BUF
Total/NA	Analysis	SM 2320B		1	384443	10/27/17 22:22	DSC	TAL BUF
Total/NA	Analysis	SM 2340C		1	500431	10/29/17 09:09	DAM	TAL SAV
Total/NA	Analysis	SM 2510B		1	384064	10/26/17 17:35	ALZ	TAL BUF
Total/NA	Analysis	SM 2540B		1	385101	11/01/17 16:23	EKB	TAL BUF
Total/NA	Analysis	SM 2540C		1	384921	11/01/17 04:41	KMB	TAL BUF
Total/NA	Analysis	SM 2540C		1	385417	11/03/17 04:06	BEV	TAL BUF
Total/NA	Analysis	SM 2540D		1	384498	10/30/17 00:57	KMB	TAL BUF
Total/NA	Analysis	SM 5210B		1	384090	10/26/17 15:11	ALZ	TAL BUF
Total/NA	Analysis	SM 5310D		1	384834	10/30/17 18:28	EKB	TAL BUF
Total/NA	Analysis	Total Nitrogen		1	385262	11/02/17 12:23	MRF	TAL BUF

### **Laboratory References:**

SC0088 = New England Bioassay, Inc., 77 Batson Drive, Manchester, CT 06040

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

### **Accreditation/Certification Summary**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2 TestAmerica Job ID: 480-126540-1

### **Laboratory: TestAmerica Buffalo**

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program		<b>EPA Region</b>	<b>Identification Number</b>	<b>Expiration Date</b>
Massachusetts	State Pro	gram	1	M-NY044	06-30-18
The following analytes	s are included in this repo	rt, but are not accredi	ted/certified under t	his accreditation/certificatio	n:
Analysis Method	Prep Method	Matrix	Analyt	е	
SM 5310D		Water	Total 0	Organic Carbon	
	s are included in this repo Prep Method			ered by the governing author	ority:
The following analytes	•	rt, but accreditation/co	ertification is not offe	ered by the governing author	ority:
The following analytes	•	rt, but accreditation/co	ertification is not offe	ered by the governing authore	ority:

### **Laboratory: TestAmerica Savannah**

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program		EPA Region	<b>Identification Number</b>	Expiration Date	
Massachusetts	State Program		1	M-GA006	06-30-18	
The following analytes	s are included in this repo	rt, but are not accre	dited/certified under t	his accreditation/certificatio	n:	
Analysis Method	Prep Method	Matrix	Analyt	е		
200.8	200	Water	Alumir	num		
200.8	200	Water	Zinc			
The following analytes	s are included in this repo	rt, but accreditation/	certification is not off	ered by the governing author	ority:	
Analysis Method	Prep Method	Matrix	Analyt	е		
SM 2340C		Water	Hardn	ess as calcium carbonate		

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11/14/2017

### **Method Summary**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2

TestAmerica Job ID: 480-126540-1

Method	Method Description	Protocol	Laboratory
200.8	Metals (ICP/MS)	EPA	TAL SAV
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 2340C	Hardness, Total (mg/l as CaC03)	SM	TAL SAV
SM 2510B	Conductivity, Specific Conductance	SM	TAL BUF
SM 2540B	Solids, Total	SM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
SM 5310D	Organic Carbon, Total (TOC)	SM	TAL BUF
Total Nitrogen	Nitrogen, Total	EPA	TAL BUF
Stormwater Toxicitv	General Sub Contract Method	NONE	SC0088

### **Protocol References:**

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

### **Laboratory References:**

SC0088 = New England Bioassay, Inc., 77 Batson Drive, Manchester, CT 06040

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Buffalo

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### **Sample Summary**

Client: SUEZ Water Environmental Services Inc Project/Site: Stormwater Toxicity + BOS/TSS/N2

TestAmerica Job ID: 480-126540-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-126540-1	CSO#9 STORMWATER	Water	10/25/17 03:47	10/26/17 01:30

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# SUBCONTRACTED DATA

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WATER
CONSTRUCTION
MANAGEMENT

77 Batson Drive

T: 860.643.9560

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## ACUTE AQUATIC TOXICITY TEST REPORT

### United Water, Holyoke MA Stormwater Discharge

Test Start Date:	October 26, 2017	
Test Period:	October 2017	

### Report Prepared by:

New England Bioassay A division of GZA GeoEnvironmental, Inc. 77 Batson Drive Manchester, CT 06042

NEB Project Number: 05.0044965.00

Report Date:	November 13, 2017	

Report Submitted to:

Test America, Westfield 501 Southampton Road Suite C Westfield, MA 01085

Sample ID:	CSO #9 Stormwater	

This report shall not be reproduced, except in its entirety, without written approval of New England Bioassay (NEB). NEB is the sole authority for authorizing edits or modifications to the data contained in this report. Test results relate only to samples analyzed. Please contact the Lab Manager, Kimberly Wills, at 860-858-3153 or <a href="mailto:kimberly.wills@gza.com">kimberly.wills@gza.com</a> if you have any questions concerning these results.

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### Whole Effluent Toxicity Testing Report Instruction Form

Client Name/Project: Test America / United Water Test Date: 10/26/17
Sample ID: CSO #9 Stormwater
Your results were as follows:
XPass (Monitoring Only)
□ Fail – Please proceed according to the instructions in your permit.
□ Invalid – Retesting is still required. Retest report will be sent at a later date under separate cover.
□ Original Test Invalid – Valid retest performed. Both test and retest results are attached.
□ Retesting will be or has been performed according to the Case 1 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water.
This is your case of dilution water toxicity. Please proceed according to the Case 2 Protocols outlined in the attached copy of EPA-New England's species-specific, self-implementing policy for alternate dilution water. The alternate dilution water you select for future tests for this species should be described as follows: "synthetic laboratory water made up according to EPA's toxicity test protocols, by adding specified amounts of salts into deionized water in order to match the hardness of our receiving water." Writing this letter should help you to avoid retests in the future.
□ Available information is insufficient to determine whether this test passed or failed. Please compare results to your permit limits. Please submit a current copy of your permit to the NEB Lab so that we can determine the status of future tests results and help ensure your compliance with permit requirements.

## Please complete the items on this list before reporting these results according to the instructions in the "Monitoring and Reporting" Section of your permit.

- Please complete, sign and date the upper portion of the "Whole Effluent Toxicity Test Report Certification" page which is the page directly following this page.
- Fill in the Sample Type and Sample Method (upper right) and the Permit Limits (lower left) on the EPA Toxicity Test Summary Sheet(s) if they are incomplete.
- Fill in any missing information on the NEB Chain-of-Custody documents. This includes ensuring that the following information is recorded: Sampler's name and title, Facility name and address, Sample collection methods, Sample collection start and end dates and times, Types of sample, Chlorination status of samples upon shipment to NEB, Site description and Sample collection procedures.
- Monitoring results should be summarized on your monthly Discharge Monitoring Report Form.
- Signed and dated originals of this report must be submitted to the State (and Federal) Agencies specified in the "Monitoring and Reporting" section of your permit.

Questions? Please contact the Lab Manager, Kim Wills, at (860) 858-3153 or kimberly.wills@gza.com.

### WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Permittee)

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on		
	[Date]	[Authorized Signature]
		[Print or Type Name and Title]
		[Print or Type the Permittee's Name]
		[Print or Type the NPDES Permit No.]

Since the WET test and report check is complicated, the New England Bioassay Aquatic Toxicity Laboratory has certified the validity of the WET test data in the section below. Please note that this does not relieve the permittee from its responsibility to sign and certify the report under 40 C.F.R. S 122.41(k).

### WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Bioassay Laboratory)

I certify under penalty of law that this document and all ATTACHMENTS were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on

[Authorized Signature]

Kim Wills, Laboratory Manager
[Print or Type Name and Title]

New England Bioassay

[Print or Type Name of Bioassay Laboratory]

24. Telephone Contacts

If you have questions, please contact Joy Hilton, Water Technical Unit, at (617) 918-1877 or David McDonald, Ecosystem Assessment Unit, at (617) 918-8609.

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	l Water	Test Start Date:	
NPDES Permit Number	er: MA0101630	Pipe Number:	
Test Type X Acute Chronic	Test Species Fathead Minnow X Ceriodaphnia	_ Dechlorinated	X Composite
_ Modified (chronic reporting acute values) _ 24hr screening	_ Daphnia Pulex _ Mysid Shrimp _ Sheepshead _ Menidia _ Sea Urchin _ Champia _ Selenastrum	_ Chlorine Spiked in Lab _ Chlorinated on site _ Unchlorinated	
B	_Other		
or other source _ alternate surface was	es of contamination; (Recter of known quality and	of or away from the discharge ceiving water name: a hardness, etc. to generally re Surface water name:	flect the
X synthetic water prepresent grade of	pared using either Millipo chemicals; or deionized we mixed with deionized we hypersaline brine; or	ore Mill-Q or equivalent deioniwater combined with mineral w	ized water and
Effluent sampling date	(s): <u>10/24-25/17</u>		
	s tested (in%): $\underline{0}$ 6.25 concentration: $\underline{N/A}$	12.5 25 50 100	
With sea salts? N/A	Hypersaline brine solu	If yes, to what value? $\frac{N/A}{1}$ tion? $\frac{N/A}{1}$ ity adjustment (%): $\frac{0}{1}$	• •
Reference Toxicant tes	et date:10/3/1	7	
	Test Accept	tability Criteria	
Mean Control Survival	: N/A	Mean Control Reproduction:	N/A
Mean Diluent Survival	: 95%	Mean Diluent Reproduction:	N/A
Mean Control Weight:		Mean Control Cell Count:	
Mean Diluent Weight:		Mean Diluent Cell Count:	N/A
<u>Limits</u>		<u>Results</u>	
LC50 <u>N/A</u>	LC50	70.7%	
	Upper	2	<del></del>
	Lower	-	
		Analysis	
		d Used <u>Graphical</u>	
A-NOEC	A-NOI		
C-NOEC N/A	C-NOI	-	<del></del>
1007	LOEC	-	
IC25 N/A	IC25	-	
IC50 N/A	IC50	******	

### CERIODAPHNIA DUBIA AQUATIC TOXICITY TEST REPORT

**Test Reference Manual:** EPA 821-R-02-012, "Methods for Measuring the Acute Toxicity of

Effluents and Receiving Waters to Freshwater Organisms and

Marine Organisms", Fifth Edition

**Test Method:** 

Ceriodaphnia dubia Acute Toxicity Test - Method 2002.0

**Test Type**:

Acute Static Non-Renewal Freshwater Test

Temperature:

 $25 \pm 1$ °C

Light Quality:

Ambient Laboratory Illumination

Photoperiod:

16 hours light, 8 hours dark

**Test Chamber Size:** 

30 mL

**Test Solution Volume:** 

Minimum 25 mL

Age of Test Organisms:

1-24 hours (neonates)

**Number of Daphnids** 

Per Test Chamber: 5

**Number of Replicate Test** 

**Chambers Per Treatment: 4** 

**Total Number of Daphnids** 

**Per Test Concentration:** 20

Feeding Regime:

Fed YCT and Selanastrum while holding prior to initiating test as

per manual.

Aeration:

None

**Dilution Water**:

NEB Lab Synthetic Soft Water (hardness \_\_\_\_\_ 40 to 48 mg/L)

**Effluent Concentrations:** 

0%, 6.25%, 12.5%, 25%, 50% and 100% effluent

**Test Duration:** 

48 hours

Effect measured:

Mortality – no movement of body/appendages on gentle prodding.

**Test Acceptability:** 

 $\geq$  90% survival of test organisms in control solution Yes X No

**Sampling Requirements:** Samples first used within 36 hours of collection

Yes X No

Sample Volume Required: Minimum 1 liter

Test Organism Source:

**NEB** 

Test Acceptability Criteria: Mean Alternate Water Control Survival = N/A

Mean Dilution Water Control Survival = 95%

Test Results:		Limits	Results Status
	48-hour LC50 Upper Value Lower Value Data Analysis Method Us A-NOEC	N/A sed	70.7% 100% 50% Graphical 50%
Reference Toxicant Data:	<u>Date</u> : <u>Toxicant</u> : <u>Dilution Water:</u> <u>Source</u> : <u>48-hour LC50:</u> <u>In Acceptable Rang</u>	Sodium NEB La New En	n Chloride ab Synthetic Soft Water ngland Bioassay g/L X No
<b>Dechlorination Procedures</b>	: Chlorine is measured usi	ing 4500 CL-G	DPD Colorimetric Method.
X Dechlorination was not re-	quired		
Sample was dechlorinated be Since dechlorination of the ewith sodium thiosulfate was dechlorinated sample.	effluent was necessary, a th	iosulfate contr	ol of diluent water spiked
X Chlorine Measurement wa measured using Amperometr		nce. Chlorine	was <u>0.05</u> mg/L when
_Total Residual Chlorine wa Additional Notes or Other			as found to be mg/L.
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# NEW ENGLAND BIOASSAY ACUTE TOXICITY DATA FORM COVER SHEET FOR LC50 TESTS

CLIENT: Test America  ADDRESS: 501 Southampton Rd, Suite C  Westfield, MA 01085  SAMPLE TYPE: United Water (Holyoke SW)  DILUTION WATER: Soft Reconstituted Freshwater  Sample Date(s): 10/24-25/17	Date Received:	C.dubia TEST ID #  COC #  PROJECT #	17-1671 c37-4024 05.0044965.00
]	INVERTEBRATES		
TEST SET UP (TECH INIT) TEST SPECIES NEB LOT# AGE TEST SOLUTION VOLUME (mls) NO. ORGANISMS PER TEST CHAMBER NO. ORGANISMS PER CONCENTRATION NO. ORGANISMS PER CONTROL	Ceriodaphnia dubia Cd17(10-26) < 24 hours 30 5 20		
LABORATORY CONTROL WATER:		Hardness mg/L CaCO <sub>3</sub>	Alkalinity mg/L CaCO <sub>3</sub>
ARTIFICIAL FW: NEB BATCH #	C37-S022	50	40
TEST START: TEST END: RESULTS OF (	DATE  10/26/17  10/28/17  Ceriodaphnia dubia	1541 1529 LC50 TEST	
METHOD	LC50 (%)	95% Confidence Limits	
BINOMIAL/GRAPHICAL PROBIT	70.7%	50% - 100%	
SPEARMAN KARBER NOAEL	50%		
NOEC: NO OBSERVABLE EFFECT CONCENTRA	ΓΙΟΝ		
Comments:			
			T ~
REVIEWD BY:	1/15	DATE:	11/13/1

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NEW ENGLAND BIOASSAY Toxicity Test Data Sheet

NEB Test #:	17-1671	Test Organism: Ceriodaphnia dubia			
Project #:	05.0044965.00	Organism Age:	< 2	4 hours	
Facility Name:	United Water	Test Duration:	48	_(hours)	
Date Sampled:	10/24-25/17	Beginning Date:	10/26/17	Time:1541	
Date Received:	10/26/17	Dilution Water Sou	urce:	SRCF	
Sample ID:	CSO #9 Stormwater	Dilution Hardness:	50	_ppm as CaCO₃	

Effluent Conc. %		lumber o Surviving Organism	9		Dissolved Oxygen (mg/L)	_	Te	emperatu (°C)	ire		рН	
Initials	PD	CW	CW	PD	CW	CW	PD	cw	CW	PD	CW	CW
	0	24	48	0	24	48	0	24	48	0	24	48
Diluent A	5	5	5	8.1	8.2	8.4	24.9	25.7	24.7	7.6	7.5	7.4
Diluent B	5	5	5			8.3			24.8			7.4
Diluent C	5	5	4			8.2			25.2			7.3
Diluent D	5	5	5			8.2			25.1			7.3
6.25 A	5	5	5	8.1	8.2	8.2	25.1	25.3	25.0	7.6	7.5	7.2
6.25 B	5	5	5			8.2			25.2			7.2
6.25 C	5	5	5			8.2			25.3			7.2
6.25 D	5	5	5			8.2			25.4			7.2
12.5 A	5	5	5	8.2	8.0	8.2	25.1	25.8	25.4	75	7.5	7.2
12.5 B	5	5	5			8.1			25.5			7.2
12.5 C	5	5	5			8.1			25.4			7.2
12.5 D	5	5	5			8.1			25.5			7.2
25 A	5	5	5	8.3	7.7	8.1	251	25.8	25.5	7.5	7.5	7.2
25 B	5	5	5			8.0			25.4			7.2
25 C	5	5	5			8.0			25.4			7.2
25 D	5	5	5			8.0			25.5			7.2
50 A	5	5	5	8.5	7.4	8.0	25.0	25.6	25.5	7.3	7.5	7.3
50 B	5	5	5			7.8			25.4			7.3
50 C	5	5	5			7.7			25.5			7.2
50 D	5	5	5			7.6			25.5			7.2

LC50	Confidence Interval	A-NOEC	Computational Method
70.7%	50% - 100%	50%	Graphical

### **NEW ENGLAND BIOASSAY Toxicity Test Data Sheet**

NEB Test #:	17-1671	Test Organism:	Cerioda	phnia dubia	3
Project #:	05.0044965.00	Organism Age:	< 2		
Facility Name:	United Water	Test Duration:	48	(hours)	
Date Sampled: _	10/24-25/17	Beginning Date:	10/26/17	Time:	1541
Date Received:	10/26/17	Dilution Water So	urce:	SRCF	
Sample ID:	CSO #9 Stormwater	Dilution Hardness:	50	ppm as (	CaCO₃

Effluent Conc. %		lumber o Surviving Organism	g	[	Dissolved Oxygen (mg/L)		Te	emperatu (°C)	ire		рН	
Initials	PD	cw	cw	PD	CW	CW	PD	CW	CW	PD	cw	CW
	0	24	48	0	24	48	0	24	48	0	24	48
100 A	5	0	0	9.5	6.3	7.0	24.7	26.0	25.5	6.7	7.3	7.1
100 B	5	0	0		6.0	6.8		26.0	25.5		7.3	7.1
100 C	5	0	0		6.1	6.8		26.0	25.5		7.3	7.0
100 D	5	0	0		6.1	6.9		26.0	25.5		7.2	6.9
										_		
				-			-					

LC50	Confidence Interval	A-NOEC	Computational Method
70.7%	50% - 100%	50%	Graphical

Report Date: Test Code:

13 Nov-17 10:36 (p 1 of 2) 17-1671 | 18-3495-3463

Ceriodaphnia	48-h	Acute Surv	/ival T	est								N	ew Englan	d Bioassay
Analysis ID: Analyzed:		2153-6784 Nov-17 10:3	0	Endp Analy		n Survival Ra		vs T	reatments		IS Version		1.9.2	
Batch ID:	08-6	381-9841		Test	Type: Sui	vival (48h)				Ana	lyst:			
Start Date:	26 C	oct-17 15:41		Proto	col: EP	A/821/R-02-	012 (20	02)		Dilu	ent: La	boratory Wat	ter	
Ending Date:	28 C	oct-17 15:29		Spec		riodaphnia d	ubia			Brin	e: No	ot Applicable		
Duration:	48h			Sour	ce: In-l	House Cultur	re			Age	: <2	24h		
Sample ID:	05-5	207-1997		Code	: 20	E7F33D				Clie	nt: Te	est America		
Sample Date:	25 C	oct-17 03:47		Mate	riat: WV	VTF Effluent	t			Proj	ect:			
Receipt Date:	26 C	ct-17 14:50		Sour	ce: Hol	yoke WWTF	F (MA01	0163	30)					
Sample Age:	36h			Statio	on:									
Data Transfor	m		Alt I	<del>l</del> ур						NOEL	LOEL	TOEL	TU	PMSD
Angular (Corre	cted)		C > 7	Γ						50	> 50	n/a	2	8.77%
Steel Many-O	ne Ra	ank Sum Te	st											
Control	vs	Conc-%			Test Stat	Critical	Ties	DF	P-Type	P-Value	Decisio	n(a:5%)		
Dilution Water		6.25			20	10	1	6	Asymp	0.9361	Non-Sig	nificant Effec	t	
		12.5			20	10	1	6	Asymp	0.9361	Non-Sig	nificant Effec	t	
		25			20	10	1	6	Asymp	0.9361	Non-Sig	nificant Effec	t	
		50			20	10	1	6	Asymp	0.9361	Non-Sig	nificant Effec	t	
Test Acceptab	oility	Criteria	Т	AC Lin	nits									
Attribute		Test Stat	Low	er	Upper	Overlap	Decis	ion						
Control Resp		0,95	0.9		>>	Yes	Passe	s Cr	iteria					
ANOVA Table														
Source		Sum Squa	res		Mean Squ	ıare	DF		F Stat	P-Value	Decisio	n(α:5%)		
Between		0.0113416			0.0028354		4		1	0.4380	Non-Sig	nificant Effec	t	
Error		0.0425309			0.0028354	1	15							
Total		0.0538725					19							
Distributional	Test	s												
Attribute		Test						tat	Critical	P-Value	Decisio	<u> </u>		
Variances		Levene Eq	_				9		4.893	6.5E-04	•	Variances		
Variances		Mod Lever	-	-		Test	1		4.893	0.4380	Equal Va			
Distribution		Shapiro-W	ilk W I	Norma	lity Test		0.5088	3	0.866	3.8E-07	Non-Nor	mal Distribut	ion	
48h Survival F	Rate	Summary												
Conc-%		Code	Cour	nt	Mean	95% LCL	95% U	CL	Median	Min	Max	Std Err	CV%	%Effect
0		D	4		0.9500	0.7909	1.0000	)	1.0000	0.8000	1.0000	0.0500	10.53%	0.00%
6.25			4		1.0000	1.0000	1.0000	)	1.0000	1.0000	1.0000	0.0000	0.00%	-5.26%
12.5			4		1.0000	1.0000	1.0000	)	1.0000	1.0000	1.0000	0.0000	0.00%	-5.26%
25			4		1.0000	1.0000	1.0000		1.0000	1.0000	1.0000	0.0000	0.00%	-5.26%
50			4		1.0000	1.0000	1.0000	)	1.0000	1.0000	1.0000	0.0000	0.00%	-5.26%

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.286	1.096	1.475	1.345	1.107	1.345	0.05953	9.26%	0.00%
6.25		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-4.63%
12.5		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-4.63%
25		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-4.63%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.00%	-4.63%

Angular (Corrected) Transformed Summary

Report Date:

13 Nov-17 10:36 (p 2 of 2)

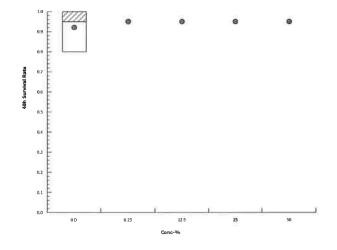
		_				Test Code:	17-1671   18-3495-3463
Ceriodaphnia	a 48-h Acute Su	rvival Te	st				New England Bioassay
Analysis ID:	08-2153-6784		Endpoint:	48h Survival F	Rate	CETIS Version:	CETISv1.9.2
Analyzed:	13 Nov-17 10:	:30	Analysis:	Nonparametri	c-Control vs Treatments	Official Results:	Yes
48h Survival	Rate Detail						
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4		
0	D	1.0000	1.000	0.8000	1.0000		
6.25		1.0000	1.000	0 1.0000	1.0000		
12.5		1.0000	1.000	0 1.0000	1.0000		
25		1.0000	1,000	0 1.0000	1.0000		
25							

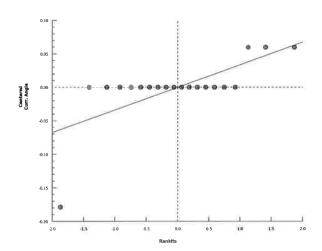
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	
0	D	1.345	1.345	1.107	1.345	
6.25		1.345	1.345	1.345	1.345	
12.5		1.345	1.345	1.345	1.345	
25		1.345	1.345	1.345	1.345	
50		1.345	1.345	1.345	1.345	

### 48h Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	5/5	5/5	4/5	5/5
6.25		5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	5/5

### Graphics





Report Date: **Test Code:** 

13 Nov-17 10:37 (p 1 of 2) 17-1671 | 18-3495-3463

Ceriodaphnia	48-h Acute Sur	vival Test							Ne	ew Engla	ınd Bioassa
Analysis ID:	05-1490-0117			48h Survival Ra				S Version:	CETISv1	.9.2	
Analyzed:	13 Nov-17 10:3	30 Ana	alysis:	Binomial Metho	od		Offic	ial Results:	Yes		
Batch ID:	08-6381-9841	Tes	t Type:	Survival (48h)			Anal	yst:			
Start Date:	26 Oct-17 15:41	Pro	tocol:	EPA/821/R-02-	012 (2002)	1	Dilue	ent: Labo	oratory Wat	er	
<b>Ending Date:</b>	28 Oct-17 15:29	Spe	ecies:	Ceriodaphnia d	ubia		Brine	e: Not	Applicable		
Duration:	48h	Sou	ırce:	In-House Cultu	re		Age:	<24	h		
Sample ID:	05-5207-1997	Cod	de:	20E7F33D			Clier	nt: Test	America		
	25 Oct-17 03:47		terial:	WWTF Effluent	t		Proje	ect:			
-	: 26 Oct-17 14:50	Sou	ırce:	Holyoke WWTF	F (MA0101	630)					
Sample Age:	36h	Sta	tion:								
Binomial/Gra	phical Estimates	3									
Threshold Op	otion TI	hreshold	Trim	Mu	Sigma		LC50	95% LCL	95% UCL		
Control Thresh	hold 0.	05	0.00%	1.849	0		70.71	50	100		
Test Acceptat	bility Criteria	TAC L	imits								
Attribute	Test Stat	Lower	Upper	Overlap	Decision	1					
Control Resp	0.95	0.9	>>	Yes	Passes (	Criteria					
48h Survival I	Rate Summary				Calc	ulated Varia	ite(A/B)				
Conc-%	Code	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	Α	В
0	D	4	0.9500	0.8000	1.0000	0.0500	0.1000	10.53%	0.0%	19	20
6.25		4	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	-5.26%	20	20
12.5		4	1.0000		1.0000	0.0000	0.0000	0.00%	-5.26%	20	20
25		4	1.0000		1.0000	0.0000	0.0000	0.00%	-5.26%	20	20
50		4	1.0000		1.0000	0.0000	0.0000	0.00%	-5.26%	20	20
100		4	0.0000	0.0000	0.0000	0.0000	0.0000		100.0%	0	20
48h Survival I	Rate Detail										
Conc-%	Code	Rep 1	Rep 2		Rep 4						
0	D	1.0000	1.0000		1.0000						
6.25		1.0000	1.0000		1.0000						
12.5		1.0000	1.0000	1.0000	1.0000						
25		1.0000	1.0000	1.0000	1.0000						
50		1.0000	1.0000	1.0000	1.0000						
100		0.0000	0.0000	0.0000	0.0000						
48h Survival I	Rate Binomials										
Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4						
0	D	5/5	5/5	4/5	5/5						

002-	570	-91	5-7

12.5

25

50

100

5/5

5/5

5/5

0/5

5/5

5/5

5/5

0/5

5/5 5/5

5/5

0/5

5/5

5/5

5/5

0/5

### **CETIS Analytical Report**

Report Date:

13 Nov-17 10:37 (p 2 of 2) 17-1671 | 18-3495-3463

**Test Code:** 

Analysis ID: Analyzed:

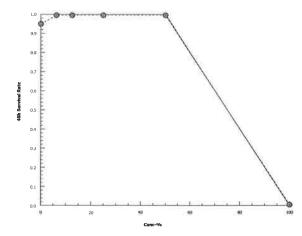
05-1490-0117 13 Nov-17 10:30

Ceriodaphnia 48-h Acute Survival Test

Endpoint: 48h Survival Rate Binomial Method Analysis:

**CETIS Version:** CETISv1.9.2 Official Results: Yes

### Graphics

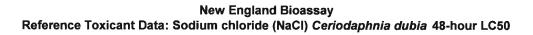


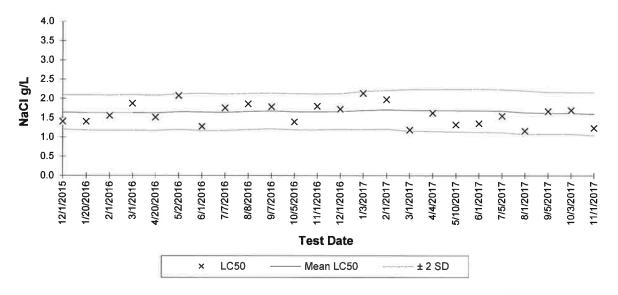
**New England Bioassay** 

### **INITIAL CHEMISTRY INFORMATION**

CLIENT: PROJECT #	United Water 05.0044965.00					
RECIEPT DATE	10/26/17					
SAMPLE	Effluent					
COC#	C37-4024					
Temperature (°C)	1.1					
Dissolved Oxygen (mg/L)	10.4					
pH (standard units)	6.5					
Conductivity (µmhos/cm)	116					
Salinity (ppt)	<1					
Hardness (as mg/L CaCO3)	12					
Alkalinity (as mg/L CaCO3)	5					
TRC - DPD (mg/L)	0.202*					
INITIALS	СВ					

Additional notes:	
	* 0.05 mg/L by amperometric titration





								CV National	<b>CV National</b>
Test ID	Date	LC50	Mean LC <sub>50</sub>	STD	-2 STD	+2 STD	CV	75th %	90th %
15-1772	12/1/2015	1.4	1.6	0.2	1.2	2.1	0.13	0.29	0.34
16-107	1/20/2016	1.4	1.6	0.2	1.2	2.1	0.14	0.29	0.34
16-134	2/1/2016	1.6	1.6	0.2	1.2	2.1	0.14	0.29	0.34
16-298	3/1/2016	1.9	1.6	0.2	1.2	2.1	0.14	0.29	0.34
16-563	4/20/2016	1.5	1.6	0.2	1.2	2.1	0.14	0.29	0.34
16-592	5/2/2016	2.1	1.7	0.2	1.2	2.1	0.14	0.29	0.34
16-703	6/1/2016	1.3	1.7	0.2	1.2	2.1	0.15	0.29	0.34
16-885	7/7/2016	1.8	1.6	0.2	1.2	2.1	0.14	0.29	0.34
16-1156	8/8/2016	1.9	1.7	0.2	1.2	2.1	0.14	0.29	0.34
16-1252	9/7/2016	1.8	1.7	0.2	1.2	2.1	0.14	0.29	0.34
16-1466	10/5/2016	1.4	1.7	0.2	1.2	2.1	0.14	0.29	0.34
16-1586	11/1/2016	1.8	1.7	0.2	1.2	2.1	0.14	0.29	0.34
16-1730	12/1/2016	1.7	1.7	0.2	1.2	2.1	0.14	0.29	0.34
17-5	1/3/2017	2.1	1.7	0.2	1.2	2.2	0.15	0.29	0.34
17-147	2/1/2017	2.0	1.7	0.3	1.2	2.2	0.15	0.29	0.34
17-274	3/1/2017	1.2	1.7	0.3	1.2	2.2	0.16	0.29	0.34
17-475	4/4/2017	1.6	1.7	0.3	1.1	2.2	0.16	0.29	0.34
17-695	5/10/2017	1.3	1.7	0.3	1.1	2.2	0.16	0.29	0.34
17-772	6/1/2017	1.4	1.7	0.3	1.1	2.2	0.17	0.29	0.34
17-968	7/5/2017	1.6	1.7	0.3	1.1	2.2	0.17	0.29	0.34
17-1140	8/1/2017	1.2	1.6	0.3	1.1	2.2	0.17	0.29	0.34
17-1325	9/5/2017	1.7	1.6	0.3	1.1	2.2	0.17	0.29	0.34
17-1521	10/3/2017	1.7	1.6	0.3	1.1	2.2	0.17	0.29	0.34
17-1689	11/1/2017	1.2	1.6	0.3	1.0	2.2	0.18	0.29	0.34

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11/14/2017

### **Login Sample Receipt Checklist**

Client: SUEZ Water Environmental Services Inc Job Number: 480-126540-1

Login Number: 126540 List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

Creator. Williams, Christopher 5		
Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	SUEZ
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

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11

Client: SUEZ Water Environmental Services Inc

There is sufficient vol. for all requested analyses, incl. any requested

Containers requiring zero headspace have no headspace or bubble is

Job Number: 480-126540-1

Login Number: 126540 List Source: TestAmerica Savannah List Number: 2 List Creation: 10/26/17 03:49 PM

Creator: Edwards, Jessica R		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	

True

N/A

True

True

N/A

TestAmerica Buffalo

MS/MSDs

<6mm (1/4").

Multiphasic samples are not present.

Residual Chlorine Checked.

Samples do not require splitting or compositing.

50#08

Page 29 of 30

Lobroke

747

Client Contact:

Client Information:

2200

Company

ample Collection Site Name & Location

lient's Project Name/Number:

lient's Contact Ema

Client's Phone: tate and Zip:

**TestAmerica Westfield** 

501 Southampton Road

Westfield MA 01085

WI-QA-010 rev 8

Custody Seals Intact:

11/14/2017

A No

Flammable

Non-Hazard

\*\* Matrix Types: A=Air

elinquished by:

8